

Delaware

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The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "FOUNDATION MEDICINE, INC.", FILED IN THIS OFFICE ON THE TENTH DAY OF SEPTEMBER, A.D. 2012, AT 12:34 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

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You may verify this certificate online
at corp.delaware.gov/authver.shtml




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 9833193

DATE: 09-10-12

EFTA01143227

FIFTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

FOUNDATION MEDICINE, INC.

Foundation Medicine, Inc. (the "**Corporation**"), a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "**GCL**"), does hereby certify as follows:

1. The name of this Corporation is Foundation Medicine, Inc. The original Certificate of Incorporation of the Corporation was filed with the Delaware Secretary of State on November 12, 2009 (the "**Certificate**") under the name Foundation Genomics, Inc. The Certificate was amended and restated on March 29, 2010 (the "**Amended and Restated Certificate of Incorporation**"), as amended by a Certificate of Amendment dated October 28, 2010, and as further amended by a Certificate of Amendment dated May 5, 2011. The Amended and Restated Certificate of Incorporation was amended and restated on August 8, 2011 (the "**Second Amended and Restated Certificate of Incorporation**"). The Second Amended and Restated Certificate of Incorporation was amended and restated on August 23, 2011 (the "**Third Amended and Restated Certificate of Incorporation**"). The Third Amended and Restated Certificate of Incorporation was amended and restated on April 18, 2012 (the "**Fourth Amended and Restated Certificate of Incorporation**").
2. This Fifth Amended and Restated Certificate of Incorporation amends, restates and integrates the provisions of the Fourth Amended and Restated Certificate of Incorporation and has been duly adopted in accordance with the provisions of Sections 242 and 245 of the GCL.
3. Pursuant to Section 228(a) of the GCL, the holders of outstanding shares of the Corporation, having not less than the minimum number of votes that would be necessary to authorize or take such actions at a meeting at which all shares entitled to vote thereon were present and voted, consented to the adoption of the aforesaid amendments without a meeting, without a vote and without prior notice and that written notice of the taking of such actions is being given in accordance with Section 228(e) of the GCL.
4. The text of the Certificate of Incorporation of the Corporation is hereby amended and restated to read in its entirety as follows:

FIFTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

FOUNDATION MEDICINE, INC.

ARTICLE I

Name

The name of the Corporation is Foundation Medicine, Inc. (the "**Corporation**").

ARTICLE II

Registered Agent

The address of the registered office of the Corporation in the State of Delaware is 2711 Centerville Road, Suite 400, Wilmington, New Castle County, Delaware 19808. The name of its registered agent at such address is Corporation Service Company.

ARTICLE III

Purpose

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware.

ARTICLE IV

Capital Stock

A. Capital Stock.

1 Authorized Shares. The total number of shares of all classes of stock which the Corporation shall have authority to issue is:

(a) 90,000,000 shares of Common stock, par value of \$0.0001 per share ("**Common Stock**"); and

(b) 62,755,304 shares of Preferred Stock of the Corporation, par value of \$0.0001 per share (the "**Preferred Stock**").

2 Stock Rights and Preferences. The Common Stock and Preferred Stock authorized hereunder shall have the voting powers, preferences and relative, participating, optional and other special rights, qualifications, limitations and restrictions as follows:

B. Common Stock.

1 General. The voting, dividend and liquidation and other rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of Preferred Stock.

2 Voting. Except as provided in this Fifth Amended and Restated Certificate of Incorporation or by applicable law, holders of the Common Stock are entitled to one vote for each share held. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Fifth Amended and Restated Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the Delaware General Corporation Law.

3 Dividends. Dividends may be declared and paid on the Common Stock from funds lawfully available therefor if, as and when determined by the Board of Directors of the Corporation (the "**Board of Directors**") in their sole discretion, subject to provisions of law, any provision of this Fifth Amended and Restated Certificate of Incorporation, as amended from time to time, and subject to the relative rights and preferences of any shares of Preferred Stock authorized and issued hereunder.

4 Liquidation. Upon the dissolution or liquidation or winding up of the Corporation, whether voluntary or involuntary, holders of Common Stock will be entitled to receive pro rata all assets of the Corporation available for distribution to its stockholders, subject, however, to the liquidation rights of the holders of Preferred Stock authorized and issued hereunder.

C. Preferred Stock.

43,950,000 shares of the authorized Preferred Stock of the Corporation are hereby designated Series A Convertible Preferred Stock (the "**Series A Preferred Stock**") and 18,805,304 shares of the authorized Preferred Stock of the Corporation are hereby designated Series B Convertible Preferred Stock (the "**Series B Preferred Stock**"), in each case with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations.

1 Dividends. The holders of Preferred Stock shall be entitled to dividends out of the Corporation's assets legally available therefor only as, when and if declared by the Board of Directors. In addition, the Corporation shall not declare, pay or set aside any dividends on any shares of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in this Fifth Amended and Restated Certificate of Incorporation) the holders of Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to the sum of: (i) in the case of a dividend on shares of Preferred Stock, the aggregate amount of any dividend declared on such share of Preferred Stock and not previously paid plus (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock (including without limitation the

Series A Preferred Stock and the Series B Preferred Stock), that dividend per share of Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all such shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization affecting such series) and (2) multiplying such fraction by an amount equal to the applicable Original Issue Price (as defined below); provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Subsection 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend, for each of the Series A Preferred Stock and Series B Preferred Stock, respectively. The "**Series A Original Issue Price**" shall mean \$1.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock. The "**Series B Original Issue Price**" shall mean \$2.26 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock. The "**Original Issue Price**" shall mean the Series A Original Issue Price in the case of the Series A Preferred Stock and the Series B Original Issue Price in the case of the Series B Preferred Stock.

2 Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

(a) Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, on a pari passu basis and before any payment shall be made to the holders of Common Stock or any other class or series of stock ranking on liquidation junior to the Preferred Stock by reason of their ownership thereof, an amount per share equal to the applicable Original Issue Price, plus any dividends declared but unpaid thereon. The aggregate amount of all preferential amounts required to be paid to the holders of Series A Preferred Stock pursuant to this subsection 2(a) shall be hereafter referred to as the "**Series A Liquidation Amount**". The aggregate amount of all preferential amounts required to be paid to the holders of Series B Preferred Stock pursuant to this subsection 2(a) shall be hereafter referred to as the "**Series B Liquidation Amount**". If upon any such liquidation, dissolution or winding up of the Corporation the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2(a), the holders of shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

(b) Remaining Assets. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, after the payment of all preferential amounts required to be paid to the holders of Preferred Stock pursuant to subsection (a) above, any remaining assets of the Corporation shall be distributed with equal priority and pro rata among the holders of the Corporation's Common Stock.

(c) Deemed Liquidation Events.

(i) Any of the following events shall be deemed to be a liquidation of the Corporation (a "**Deemed Liquidation Event**"), including for purposes of this Section 2, unless the holders of at least two-thirds of the shares of Preferred Stock then outstanding voting or consenting together as a single class on an as converted to Common Stock basis (the "**Required Holders**") elect otherwise by written notice given to the Corporation at least two (2) days prior to the effective date of any such event:

(A) a merger or consolidation in which

(I) the Corporation is a constituent party or

(II) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted or exchanged for shares of capital stock which represent, immediately following such merger or consolidation a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation (provided that, for the purpose of this Subsection 2(c)(i), all shares of Common Stock issuable upon exercise of Options (as defined below) outstanding immediately prior to such merger or consolidation or upon conversion of Convertible Securities (as defined below) outstanding immediately prior to such merger or consolidation shall be deemed to be outstanding immediately prior to such merger or consolidation and, if applicable, converted or exchanged in such merger or consolidation on the same terms as the actual outstanding shares of Common Stock are converted or exchanged);

(B) the sale, lease, transfer, exclusive license (without material field limitation) or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole or the sale or disposition (whether by merger or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation; or

(C) the sale, exchange, transfer or other disposition, in a single transaction or series of related transactions, by the stockholders of the Corporation of voting control of the Corporation.

(ii) The Corporation shall not have the power to effect any transaction constituting a Deemed Liquidation Event pursuant to Subsection 2(c)(i)(A)(I) above unless the agreement or plan of merger or consolidation for such transaction (the "**Merger Agreement**") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2(a) and 2(b) above.

(iii) In the event of a Deemed Liquidation Event pursuant to Subsection 2(c)(i)(A)(II), (B) or (C) above, if the Corporation does not effect a dissolution of the Corporation under the Delaware General Corporation Law (the "**General Corporation Law**") within thirty (30) days after such Deemed Liquidation Event, then (A) the Corporation shall deliver a written notice to each holder of Preferred Stock no later than the thirtieth (30th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (B) to require the redemption of such shares of Preferred Stock (the "**Redemption Notification**"), and (B) if the holders of at least two-thirds of the shares of Preferred Stock then outstanding, determined on an as converted to Common Stock basis, so request in a written instrument delivered to the Corporation not later than forty-five (45) days after such Deemed Liquidation Event (the "**Redemption Request**"), the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors), together with any other assets of the Corporation available for distribution to its stockholders (the "**Available Proceeds**") to redeem, to the extent legally available therefor, on the sixtieth (60th) day after such Deemed Liquidation Event (the "**Liquidation Redemption Date**"), all outstanding shares of Preferred Stock at a price per share equal to the Series A Liquidation Amount in the case of the Series A Preferred Stock or the Series B Liquidation Amount in the case of the Series B Preferred Stock (the "**Liquidation Redemption Price**"). Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. On or before the Liquidation Redemption Date, each holder of shares of Preferred Stock to be redeemed on such Liquidation Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall surrender the certificate or certificates representing such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notification, and thereupon the Liquidation Redemption Price shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate

are redeemed, a new certificate representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder. If the Redemption Notification shall have been duly given by the Corporation and the Redemption Request duly received by the Corporation, and if on the Liquidation Redemption Date, the entire Liquidation Redemption Price payable upon redemption of the shares of Preferred Stock to be redeemed on such Liquidation Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that the certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Liquidation Redemption Date, and all rights with respect to such shares shall forthwith after the Liquidation Redemption Date terminate, except only the right of the holders to receive the Liquidation Redemption Price without interest upon surrender of their certificate or certificates therefor. Prior to the distribution or redemption provided for in this Subsection 2(c)(iii), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in the ordinary course of business.

(iv) The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors.

(d) Allocation of Contingent Payments. In the event of a Deemed Liquidation Event, if any portion of the consideration payable to the stockholders of the Corporation is (i) placed into escrow (the "**Escrowed Initial Consideration**") and/or (ii) subject to contingencies (the "**Contingent Consideration**," which term, for clarity, excludes any Escrowed Initial Consideration), then the definitive agreement with respect to such Deemed Liquidation Event shall provide that (a) all consideration other than the Contingent Consideration (the "**Initial Consideration**," which term, for clarity, includes any Escrowed Initial Consideration) shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2(a), 2(b) and 2(c) as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event and (b) any Contingent Consideration which becomes payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2(a), 2(b) and 2(c) after taking into account the previous payment of the Initial Consideration and any previously paid Contingent Consideration as part of the same transaction.

(e) No Necessity to Convert. Notwithstanding the foregoing, upon any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, including any Deemed Liquidation Event, (a "**Liquidation Event**"), each holder of a series of Preferred Stock shall be entitled to receive, for each such share of Preferred Stock then held, out of the proceeds available for distribution, on a series-by-series basis, the greater of (i) the aggregate amount of cash, securities or other property to which such holder would be entitled to receive with respect to such shares in a Liquidation Event pursuant to Subsection 2(a) and, if applicable, Subsections 2(b) and 2(d) (but without giving effect to this Subsection 2(e)) or (ii) the aggregate amount of cash, securities or other property to which such holder would be entitled to receive in a Liquidation

Event with respect to such shares if such shares of Preferred Stock had actually been converted to Common Stock immediately prior to such Liquidation Event, giving effect to this Subsection 2(e). For purposes of this Fifth Amended and Restated Certificate of Incorporation, the terms “Series A Liquidation Amount” and “Series B Liquidation Amount” shall encompass such greater amount.

3 Voting.

(a) On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock entitled to vote thereon shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the provisions of Subsections 3(b), 3(c), 3(d) or 3(e) below, holders of Preferred Stock shall vote together with the holders of Common Stock, and with the holders of any other series of Preferred Stock the terms of which so provide, as a single class.

(b) The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect up to three (3) directors of the Corporation (the “**Preferred Stock Directors**”). Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the Series A Preferred Stock, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock fail, or pursuant to any agreement among the stockholders are ineligible, to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3(b), then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the holders of the Series A Preferred Stock, voting exclusively and as a separate class. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. A vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3(b). The rights of the holders of the Series A Preferred Stock under the first sentence of this Subsection 3(b) shall terminate on the earlier to occur of: (i) the closing of a firm commitment underwritten initial public offering pursuant to an effective registration statement filed under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock resulting in the automatic conversion of all outstanding shares of Series A Preferred Stock to Common Stock; or (ii) the closing of a Deemed Liquidation Event, provided that in the case of a sale of assets, such termination shall occur only upon completion of the distribution of all proceeds of such sale to the stockholders of the Corporation in accordance with this Fifth Amended and Restated Certificate of Incorporation.

(c) At any time when at least nine hundred fifty thousand (950,000) shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock) are outstanding, except where the vote or written consent of the holders of a greater number of shares of the Corporation is required by law or by this Fifth Amended and Restated Certificate of Incorporation, and in addition to any other vote required by law or this Fifth Amended and Restated Certificate of Incorporation, without the written consent or affirmative vote of the Required Holders, given in writing or by vote at a meeting, the Corporation shall not, either directly or indirectly or by amendment, merger, consolidation, capital reorganization or otherwise, and any such transaction entered into without such consent or vote shall be null and void *ab initio* and of no force or effect:

(i) Alter, amend, repeal or change the rights, preferences or privileges of the Series A Preferred Stock or the Series B Preferred Stock; or

(ii) Amend or repeal any provision of, or add any provision to or alter, the Corporation's Certificate of Incorporation or By-laws; or

(iii) Create, or authorize the creation of, or issue or obligate itself to issue, shares of any additional class or series of capital stock, unless the same ranks junior to the Series A Preferred Stock and the Series B Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation and with respect to the payment of dividends and unless the same has no redemption rights, or increase or decrease the number of authorized shares of Series A Preferred Stock or Series B Preferred Stock or increase or decrease the number of authorized shares of any additional class or series of capital stock unless the same ranks junior to the Series A Preferred Stock and the Series B Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation and with respect to the payment of dividends and unless the same has no redemption rights, increase or decrease the par value of the Series A Preferred Stock or the Series B Preferred Stock, or create or authorize any obligation or security convertible into shares of any class or series of stock unless the same ranks junior to the Series A Preferred Stock and the Series B Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation and with respect to the payment of dividends and unless the same has no redemption rights; or

(iv) Pay or declare any dividend or make any distribution on any shares of the Corporation's capital stock (except dividends payable solely in shares of Common Stock); or

(v) Effect a change of control, liquidation, dissolution, merger, reincorporation, recapitalization, reorganization, consolidation, or sale or other transfer of a substantial part of the Corporation's assets, including without limitation, effect any Deemed Liquidation Event; or

(vi) (i) Reclassify, alter or amend any existing security of the Corporation that is *pari passu* with the Series A Preferred Stock or the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation or the payment of dividends, if such reclassification, alteration or amendment would render such other security senior to the Series A Preferred Stock or the Series B Preferred Stock in respect of any such right, preference or privilege or if the same would grant such security redemption rights, or

(ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series A Preferred Stock or the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation or the payment of dividends, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series A Preferred Stock or the Series B Preferred Stock in respect of any such right, preference or privilege or would grant such security redemption rights; or

(vii) Sell, abandon, transfer, lease, pledge, subject to a lien, encumber, grant a security interest in or otherwise dispose of all or any material portion of the properties or assets of the Corporation, including any exclusive license of intellectual property rights of the Corporation or any subsidiary; or

(viii) Change the authorized number of directors of the Corporation; or

(ix) Create or authorize the creation of any debt security issuable by the Corporation; or

(x) Effect any change to the principal business of the Corporation or any subsidiary or enter into new lines of business not primarily related to the business of the Corporation or any subsidiary on the filing date of this Fifth Amended and Restated Certificate of Incorporation; or

(xi) Create or hold capital stock in any subsidiary that is not a wholly-owned subsidiary or dispose of any capital stock of a subsidiary or all or substantially all of the assets of any subsidiary; or

(xii) Exchange, repurchase, redeem, retire or otherwise acquire (or pay into or set aside for a sinking fund for such purpose) any shares of capital stock of the Corporation; provided, however, that this restriction shall not apply to (A) redemption of the Series A Preferred Stock or the Series B Preferred Stock in connection with a Deemed Liquidation Event in accordance with Section 2, (B) the repurchase of shares of Common Stock from employees, officers, directors, consultants or other persons performing services for the Corporation or any subsidiary pursuant to agreements approved by the Board of Directors under which the Corporation has the option to repurchase such shares at the lesser of cost or the fair market value upon the termination of employment or service, and (C) the redemption of any shares of Series A Preferred Stock or Series B Preferred Stock in accordance with Section 6.

(d) At any time when at least seven hundred thousand (700,000) shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock) are outstanding, except where the vote or written consent of the holders of a greater number of shares of the Corporation is required by law or by this Fifth Amended and Restated Certificate of Incorporation, and in addition to any other vote required by law or this Fifth Amended and Restated Certificate of Incorporation, without the written consent or affirmative vote of the holders of at least sixty percent (60%) of the shares of Series A Preferred Stock then outstanding, given in writing or by vote at a meeting, the Corporation shall not, either directly or indirectly or by

amendment, merger, consolidation, capital reorganization or otherwise, and any such transaction entered into without such consent or vote shall be null and void ab initio and of no force or effect;

(i) Alter, amend, repeal or change the rights, preferences or privileges of the Series A Preferred Stock set forth in this Article IV, provided, that the authorization, designation or issuance of a new series of capital stock with rights, preferences or privileges senior to or on parity with the Series A Preferred Stock, including without limitation any alteration, amendment, repeal or change in the rights or privileges of the Preferred Stock to vote, consent or otherwise act together, shall not be deemed to be an alteration, amendment, repeal or change requiring the written consent or affirmative vote pursuant to this Subsection 3(d) of the holders of at least sixty percent (60%) of the shares of Series A Preferred Stock then outstanding; or

(ii) Increase or decrease the number of authorized shares of Series A Preferred Stock.

(e) At any time when at least two hundred fifty thousand (250,000) shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock) are outstanding, except where the vote or written consent of the holders of a greater number of shares of the Corporation is required by law or by this Fifth Amended and Restated Certificate of Incorporation, and in addition to any other vote required by law or this Fifth Amended and Restated Certificate of Incorporation, without the written consent or affirmative vote of the holders of at least a majority of the shares of Series B Preferred Stock then outstanding, given in writing or by vote at a meeting, the Corporation shall not, either directly or indirectly or by amendment, merger, consolidation, capital reorganization or otherwise, and any such transaction entered into without such consent or vote shall be null and void ab initio and of no force or effect:

(i) Alter, amend, repeal or change the rights, preferences or privileges of the Series B Preferred Stock set forth in this Article IV, provided, that the authorization, designation or issuance of a new series of capital stock with rights, preferences or privileges senior to or on parity with the Series B Preferred Stock, including without limitation any alteration, amendment, repeal or change in the rights or privileges of the Preferred Stock to vote, consent or otherwise act together, shall not be deemed to be an alteration, amendment, repeal or change requiring the written consent or affirmative vote pursuant to this Subsection 3(e) of the holders of at least a majority of the shares of Series B Preferred Stock then outstanding; or

(ii) Increase or decrease the number of authorized shares of Series B Preferred Stock.

4 Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the “**Conversion Rights**”):

(a) Right to Convert. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (i) the applicable Original Issue Price by (ii)

the applicable Conversion Price (as defined below) in effect at the time of conversion. The “**Series A Conversion Price**” shall be as of September 10, 2012 equal to the Series A Original Issue Price. The “**Series B Conversion Price**” shall be as of September 10, 2012 equal to the Series B Original Issue Price. Such initial Series A Conversion Price and Series B Conversion Price, and the rate at which shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below. The “**Conversion Price**” shall mean the Series A Conversion Price, in the case of the Series A Preferred Stock, and the Series B Conversion Price, in the case of the Series B Preferred Stock.

In the event of a liquidation, dissolution or winding up of the Corporation, including any Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

(b) Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

(c) Mechanics of Conversion.

(i) In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), together with written notice that such holder elects to convert all or any number of the shares of the Preferred Stock represented by such certificate or certificates and, if applicable, any event on which such conversion is contingent. Such notice shall state such holder’s name or the names of the nominees in which such holder wishes the certificate or certificates for shares of Common Stock to be issued. If required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent of such certificates (or lost certificate affidavit and agreement) and notice (or by the Corporation if the Corporation serves as its own transfer agent) shall be the time of conversion (the “**Conversion Time**”), and the shares of Common Stock issuable upon conversion of the shares represented by such certificate shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time, issue and deliver at such office to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock to which such holder shall be entitled

and a certificate for the number (if any) of shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, together with (i) cash in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (ii) cash equal to all declared but unpaid dividends on the shares of Preferred Stock converted.

(ii) The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Fifth Amended and Restated Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the applicable Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of a series of Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted applicable Conversion Price.

(iii) All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares, including the rights, if any, to receive notices and to vote, shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor and to receive payment in lieu of any fractional share otherwise issuable upon conversion in accordance with Subsection 4(b) above and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and shall not be reissued as shares of such series, and the Corporation (without the need for stockholder action) may from time to time take such appropriate action as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

(iv) Upon any such conversion, no adjustment to the applicable Conversion Price shall be made for any declared but unpaid dividends on a series of Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

(v) The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

(d) Adjustments to Applicable Conversion Price for Diluting Issues.

(i) Special Definitions. For purposes of this Section 4, the following definitions shall apply:

(A) “**Option**” shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(B) “**Series B Original Issue Date**” shall mean the date on which the first share of Series B Preferred Stock was issued.

(C) “**Convertible Securities**” shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(D) “**Additional Shares of Common Stock**” shall mean all shares of Common Stock issued (or, pursuant to Subsection 4(d)(iii) below, deemed to be issued) by the Corporation after the Series B Original Issue Date, other than the following (“**Exempted Securities**”):

- (I) shares of Common Stock issued or deemed issued as a dividend or distribution on Preferred Stock;
- (II) shares of Common Stock issued or issuable by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4(e) or 4(f) below;
- (III) up to 12,150,000 shares of Common Stock (subject to any increases provided below) (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock) issued or deemed issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries (a) pursuant to that certain Company 2010 Stock Incentive Plan, as amended and/or restated from time to time (including to increase such number of shares of Common Stock) with the approval of the Board of Directors including the approval of at least seventy percent (70%) of the directors then in office (such approval of the Board of Directors, “**Super Board Approval**”) or (b) pursuant to any other plan, agreement or arrangement approved by Super Board Approval (which may increase such number of shares of Common Stock);

- (IV) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities outstanding as of the filing date of this Fifth Amended and Restated Certificate of Incorporation, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;
- (V) shares of Common Stock issued or deemed issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by Super Board Approval (not to exceed 8,525,530 shares of Common Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock)); or
- (VI) shares of Common Stock issued or deemed issued in connection with sponsored research, collaboration, strategic alliance, license, joint venture, development, marketing or other similar agreements or strategic partnerships approved by Super Board Approval (not to exceed 8,525,530 shares of Common Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock)).

(ii) No Adjustment of Conversion Price. No adjustment in the Conversion Price of a series of Preferred Stock shall be made as the result of the issuance of Additional Shares of Common Stock if: (a) the consideration per share (determined pursuant to Subsection 4(d)(v)) for such Additional Shares of Common Stock issued or deemed to be issued by the Corporation is equal to or greater than the applicable Conversion Price in effect immediately prior to the issuance or deemed issuance of such Additional Shares of Common Stock, or (b) (1) with respect to the Series A Conversion Price, prior to such issuance or deemed issuance, the Corporation receives written notice from the holders of at least sixty percent (60%) of the shares of Series A Preferred Stock then outstanding agreeing that no such adjustment shall be made to the Series A Conversion Price as the result of the issuance or deemed issuance of such Additional Shares of Common Stock and (2) with respect to the Series B Conversion Price, prior to such issuance or deemed issuance, the Corporation receives written notice from the holders of a majority of the shares of Series B Preferred Stock then outstanding agreeing that no such adjustment shall be made to the Series B Conversion Price as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

(iii) Deemed Issue of Additional Shares of Common Stock.

(A) If the Corporation at any time or from time to time after the Series B Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which, upon exercise, conversion or exchange thereof, would entitle the holder thereof to receive Exempted Securities pursuant to Subsections 4(d)(i)(D)(I), (II), (III), (IV), (V), or (VI)) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(B) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to a Conversion Price pursuant to the terms of Subsection 4(d)(iv) below, are revised (either automatically pursuant to the provisions contained therein or as a result of an amendment to such terms) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then, effective upon such increase or decrease becoming effective, such Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no adjustment pursuant to this clause (B) shall have the effect of increasing the Conversion Price of a series of Preferred Stock to an amount which exceeds the lower of (i) the Conversion Price of such series of Preferred Stock in effect on the original adjustment date, or (ii) the Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock between the original adjustment date and such readjustment date.

(C) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which, upon exercise, conversion or exchange thereof, would entitle the holder thereof to receive Exempted Securities pursuant to Subsections 4(d)(i)(D)(I), (II), (III), (IV), (V), or (VI)), the issuance of which did not result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4(d)(iv) below (either because the consideration per share (determined pursuant to Subsection 4(d)(v) hereof) of the Additional Shares of Common Stock subject thereto was equal to or greater than the applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series B Original Issue Date), are revised after the Series B Original Issue Date (either automatically pursuant to the provisions contained therein or as a result of an amendment to such terms) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise,

conversion or exchange, then such Option or Convertible Security, as so amended, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4(d)(iii)(A) above) shall be deemed to have been issued effective upon such increase or decrease becoming effective. If the change in such Option or Convertible Security causes an adjustment pursuant to this provision and such Option or Convertible Security is then further changed as a result of the adjustments made pursuant to this provision, no further adjustment shall be made hereunder as a result of the further automatic change in such Option or Convertible Security.

(D) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4(d)(iv) below, such Conversion Price shall be readjusted to such Conversion Price as would have obtained had such Option or Convertible Security never been issued.

(iv) Adjustment of Conversion Price of Preferred Stock Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series B Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4(d)(iii)), without consideration or for a consideration per share less than the Conversion Price of a series of Preferred Stock in effect immediately prior to such issue, then such Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C)$$

For purposes of the foregoing formula, the following definitions shall apply:

(A) "CP₂" shall mean the applicable Conversion Price in effect immediately after such issue of Additional Shares of Common Stock;

(B) "CP₁" shall mean the applicable Conversion Price in effect immediately prior to such issue of Additional Shares of Common Stock;

(C) "A" shall mean the number of shares of Common Stock outstanding (treating for this purpose all outstanding shares of Common Stock and all outstanding shares of Preferred Stock on an as-converted to Common Stock basis) immediately prior to such issue of Additional Shares of Common Stock;

(D) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP₁ (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP₁); and

(E) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

(v) Determination of Consideration. For purposes of this Subsection 4(d), the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(A) Cash and Property: Such consideration shall:

- (I) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;
- (II) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors; and
- (III) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (I) and (II) above, as determined in good faith by the Board of Directors.

(B) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4(d)(iii), relating to Options and Convertible Securities, shall be determined by dividing

- (I) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by
- (II) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon

the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

(vi) Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4(d)(iv) above, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, such Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any subsequent issuances within such period).

(e) Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series B Original Issue Date effect a subdivision of the outstanding Common Stock without a comparable subdivision of the Preferred Stock, the Conversion Price of each series of Preferred Stock in effect immediately before that subdivision or combination shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series B Original Issue Date combine the outstanding shares of Common Stock without a comparable combination of the Preferred Stock, the Conversion Price of each series of Preferred Stock in effect immediately before the combination or subdivision shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

(f) Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the applicable Conversion Price of each series of Preferred Stock in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the applicable Conversion Price then in effect by a fraction:

(i) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(ii) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close

of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, that if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the applicable Conversion Price of each series of Preferred Stock shall be recomputed accordingly as of the close of business on such record date and thereafter such Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and provided further, however, that no such adjustment shall be made to the applicable Conversion Price if the holders of such series of Preferred Stock simultaneously receive (i) a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event or (ii) a dividend or other distribution of shares of such series of Preferred Stock which are convertible, as of the date of such event, into such number of shares of Common Stock as is equal to the number of additional shares of Common Stock being issued with respect to each share of Common Stock in such dividend or distribution.

(g) Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of capital stock of the Corporation entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Preferred Stock shall receive, simultaneously with the distribution to the holders of such capital stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

(h) Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2(c), if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not a series of Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections (d), (f) or (g) of this Section 4), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of such series of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of such series of Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the applicable Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of such series of Preferred Stock.

(i) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the applicable Conversion Price of a series of Preferred Stock pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the applicable Conversion Price of each series of Preferred Stock then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of each series of Preferred Stock.

(j) Notice of Record Date. In the event:

(i) the Corporation shall take a record of the holders of its Common Stock (or other stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock of any class or any other securities, or to receive any other right; or

(ii) of any capital reorganization of the Corporation, any reclassification of the Common Stock; or

(iii) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation, including any Deemed Liquidation Event,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice. Any notice required by the provisions hereof to be given to a holder of shares of Preferred Stock shall be deemed sent to such holder if deposited in the United States mail, postage prepaid, and addressed to such holder at his, her or its address appearing on the books of the Corporation.

5 Mandatory Conversion.

(a) Upon the earlier of (A) the closing of the sale of shares of Common Stock to the public, in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in (1) at least \$30 million of gross proceeds to the Corporation, (2) a price per share at least equal to \$2.49 per share (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), and (3) the listing of the Common Stock on a nationally recognized securities exchange or trading system (any such offering, a “**Qualified Public Offering**”), or (B) a date specified by vote or written consent of the Required Holders, (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate and (ii) such shares may not be reissued by the Corporation as shares of the applicable series. In addition, upon the date and time or the occurrence of an event specified by vote or written consent of the holders of at least sixty percent (60%) of the shares of Series A Preferred Stock then outstanding, (i) all outstanding shares of Series A Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate and (ii) such shares may not be reissued by the Corporation as shares of such series. The time of the event effecting conversion of a series of Preferred Stock pursuant to this Section 5(a) is referred to herein as a “**Mandatory Conversion Date**”.

(b) All holders of record of shares of the applicable series of Preferred Stock shall be given written notice of the applicable Mandatory Conversion Date and the place designated for mandatory conversion of all such shares of such series of Preferred Stock pursuant to this Section 5. Such notice need not be given in advance of the occurrence of the applicable Mandatory Conversion Date. Such notice shall be sent by first class or registered mail, postage prepaid, to each record holder of the applicable series of Preferred Stock. Upon receipt of such notice, each holder of shares of such series of Preferred Stock shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice, and shall thereafter receive certificates for the number of shares of Common Stock to which such holder is entitled pursuant to this Section 5. On the applicable Mandatory Conversion Date, all outstanding shares of the applicable series of Preferred Stock shall be deemed to have been converted into shares of Common Stock, which shall be deemed to be outstanding of record, and all rights with respect to the shares of Preferred Stock so converted, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate, except only the rights of the holders thereof, upon surrender of their certificate or certificates (or lost certificate affidavit and agreement) therefor, to receive certificates for the number of shares of Common Stock into which such series of Preferred Stock has been converted, and payment of any declared but unpaid dividends thereon. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. As soon as practicable after the applicable Mandatory Conversion Date and the surrender of the certificate or certificates (or lost certificate affidavit and agreement) for the shares of Preferred Stock so converted, the Corporation shall cause to be issued and delivered to such holder, or on his, her or its written order, a certificate or certificates for the number of full

shares of Common Stock issuable on such conversion in accordance with the provisions hereof and cash as provided in Subsection 4(b) in respect of any fraction of a share of Common Stock otherwise issuable upon such conversion.

(c) All certificates evidencing shares of Preferred Stock which are required to be surrendered for conversion in accordance with the provisions hereof shall, from and after the applicable Mandatory Conversion Date, be deemed to have been retired and cancelled and the shares of Preferred Stock represented thereby converted into Common Stock for all purposes, notwithstanding the failure of the holder or holders thereof to surrender such certificates on or prior to such date. Such converted Preferred Stock may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6 Redemption.

(a) At any time on or after the fifth (5th) anniversary of the Series B Original Issue Date, upon the receipt by the Corporation of a written request from the holders of at least two-thirds of the shares of Preferred Stock then outstanding, determined on an as converted to Common Stock basis, that all of the then outstanding shares of Preferred Stock be redeemed, the Corporation shall, to the extent it may lawfully do so, redeem (such payment date being referred to herein as the “**Redemption Date**” and the Redemption Date being no later than sixty (60) days after the receipt by the Corporation of the written request referred to in the first sentence of this Section 6(a)) all of the then outstanding shares of Preferred Stock by paying in cash therefor a sum per share equal to the greater of (i) the applicable Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization affecting such shares) plus all declared but unpaid dividends on such shares, or (ii) the fair market value of a share of the applicable series of Preferred Stock, as determined by an independent accounting firm selected within fifteen (15) days of such written request by mutual agreement of the Corporation and such requesting holders, delivering a written report of such fair market value within forty-five (45) days of such written request, and with the cost of such appraisal to be borne by the Corporation (the “**Redemption Price**”). Any redemption of Preferred Stock effected pursuant to this Subsection 6(a) shall be made on a pro rata basis among the holders of Preferred Stock in proportion to the aggregate Redemption Price that each such holder of Preferred Stock would otherwise be entitled to receive on the applicable Redemption Date.

(b) At least fifteen (15) days prior to the Redemption Date, and following the Corporation’s receipt of a notice pursuant to Section 6(a) hereof, written notice shall be mailed, first class postage prepaid, to each holder of record (at the close of business on the business day next preceding the day on which notice is given) of Preferred Stock, at the address last shown on the records of the Corporation for such holder, notifying such holder of the redemption to be effected on the Redemption Date, specifying the number and series of the shares of Preferred Stock to be redeemed from such holder, the Redemption Price for each series of Preferred Stock and the place at which payment may be obtained and calling upon such holder to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares to be redeemed (the “**Redemption Notice**”); provided, however, that the Corporation’s failure to give such Redemption Notice shall in no way affect its obligation to redeem the shares of Preferred Stock as provided in Subsection 6(a) hereof. Except as provided in

Subsection 6(c), on or after the Redemption Date, each holder of Preferred Stock on the Redemption Date shall surrender to the Corporation the certificate or certificates representing such shares, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price of such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof and each surrendered certificate shall be cancelled. In the event less than all the shares represented by any such certificate are redeemed, a new certificate shall be issued representing the unredeemed shares.

(c) From and after the Redemption Date, unless there shall have been a default in payment of the Redemption Price, all rights of the holders of shares of Preferred Stock designated for redemption on the Redemption Date in the Redemption Notice as holders of Preferred Stock (except the right to receive the Redemption Price without interest upon surrender of their certificate or certificates) shall cease with respect to such shares, and such shares shall not thereafter be transferred on the books of the Corporation or be deemed to be outstanding for any purpose whatsoever. If the funds of the Corporation legally available for redemption of shares of Preferred Stock on the Redemption Date are insufficient to redeem the total number of shares of Preferred Stock to be redeemed, those funds that are legally available will be used to redeem the maximum possible number of such shares ratably among the holders of such shares to be redeemed in proportion to the aggregate Redemption Price that each such holder would be entitled to receive pursuant to Subsection 6(a). The shares of Preferred Stock not redeemed shall remain outstanding and entitled to all the rights and preferences provided herein; provided, however, that the unpaid balance required to redeem such shares shall accrue interest at twelve percent (12%) per annum, payable quarterly in arrears. In the event the Corporation fails to redeem any such shares for greater than sixty (60) days after the Redemption Date, the Required Holders shall have the right to elect all of the members of the Board of Directors, notwithstanding the provisions of Subsection 3(b) above. At any time thereafter when additional funds of the Corporation are legally available for the redemption of shares of Preferred Stock, such funds will immediately be used to redeem the balance of the shares that the Corporation has become obliged to redeem on any Redemption Date but that it has not redeemed.

(d) Unless waived by the Required Holders, on or prior to the Redemption Date, the Corporation shall deposit the Redemption Price of all shares of Preferred Stock designated for redemption on the Redemption Date in the Redemption Notice, and not yet redeemed or converted, with a bank or trust corporation having aggregate capital and surplus in excess of \$1,000,000,000 as a trust fund for the benefit of the respective holders of the shares designated for redemption and not yet redeemed, with irrevocable instructions and authority to the bank or trust corporation to publish the notice of redemption thereof and pay the Redemption Price for such shares to their respective holders on or after the Redemption Date, upon receipt of notification from the Corporation that such holder has surrendered his, her or its share certificate to the Corporation pursuant to Subsection 6(b). As of the date of such deposit (even if prior to the Redemption Date), the deposit shall constitute full payment of such shares to their holders, and from and after the date of the deposit, the shares so called for redemption shall be redeemed and shall be deemed to be no longer outstanding, and the holders thereof shall cease to be stockholders with respect to such shares and shall have no rights with respect thereto except the rights to receive from the bank or trust corporation payment of the Redemption Price for the shares, without interest, upon surrender of their certificates therefor. Such instructions shall also provide that any monies deposited by the Corporation pursuant to this Subsection 6(d) for the redemption of shares converted into shares of

the Corporation's Common Stock pursuant to Section 4 prior to the Redemption Date shall be returned to the Corporation forthwith upon such conversion. The balance of any monies deposited by the Corporation pursuant to this Subsection 6(d) remaining unclaimed at the expiration of two (2) years following the Redemption Date shall thereafter be returned to the Corporation upon its request expressed in a resolution of its Board of Directors.

7 Corporate Opportunity. The Corporation renounces any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of, (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, agent or investment advisor of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, "**Covered Persons**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

8 Waiver. Any of the rights, powers or preferences of the holders of Series A Preferred Stock, as a separate class, set forth herein may be defeated by the affirmative consent or vote of holders of at least sixty percent (60%) of the Series A Preferred Stock then outstanding, consenting or voting as a separate class. Any of the rights, powers or preferences of the holders of Series B Preferred Stock, as a separate class, set forth herein may be defeated by the affirmative consent or vote of holders of a majority of the Series B Preferred Stock then outstanding, consenting or voting as a separate class. Any of the rights, powers or preferences of the holders of Preferred Stock, together as a single class, set forth herein may be defeated by the affirmative consent or vote of the Required Holders.

ARTICLE V

Perpetual Existence

The Corporation is to have perpetual existence.

ARTICLE VI

By-laws

In furtherance and not in limitation of the powers conferred by the laws of the State of Delaware:

A. The Board of Directors of the Corporation is expressly authorized to adopt, amend or repeal the By-Laws of the Corporation.

B. Elections of directors need not be by written ballot unless the By-Laws of the Corporation shall so provide.

C. The books of the Corporation may be kept at such place within or without the State of Delaware as the By-Laws of the Corporation may provide or as may be designated from time to time by the Board of Directors of the Corporation.

ARTICLE VII

Indemnification

The Corporation eliminates the personal liability of each member or its Board of Directors to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided, however, that, to the extent provided by applicable law, the foregoing shall not eliminate the liability of a director (i) for any breach of such director's duty of loyalty to the Corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of Title 8 of the Delaware Code or (iv) for any transaction from which such director derived an improper personal benefit. No amendment to or repeal of this provision shall apply to or have any effect on the liability or alleged liability of any director for or with respect to any acts or omissions of such director occurring prior to such amendment or repeal.

ARTICLE VIII

Amendments and Repeal

The Corporation reserves the right to amend or repeal any provision contained in this Certificate of Incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon a stockholder herein are granted subject to this reservation.

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IN WITNESS WHEREOF, the undersigned has executed this Fifth Amended and Restated Certificate of Incorporation as of the 10th day of September, 2012.

FOUNDATION MEDICINE, INC.

By: /s/ Michael Pellini
Michael Pellini, M.D.
President and Chief Executive Officer